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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/728,528

12/05/2003

Michael Spaid

100/09431

8278

21569

7590

06/15/2004

CALIPER LIFE SCIENCES, INC.  
605 FAIRCHILD DRIVE  
MOUNTAIN VIEW, CA 94043-2234

EXAMINER

LARKIN, DANIEL SEAN

ART UNIT

PAPER NUMBER

2856

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/728,528

Applicant(s)

SPAID ET AL.

Examiner

Daniel S. Larkin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17 and 18 is/are allowed.
- 6) ☒ Claim(s) 1 and 19 is/are rejected.
- 7) ☒ Claim(s) 4-16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed 01 March 2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein, specifically the crossed-out foreign references and journal articles, has not been considered. The foreign references and journal articles crossed-out do not appear in US application Serial No. 10/008,604 and 09/792,435 from which this application claims benefit.

Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

### ***Specification***

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Objections***

3. Claims 1-16 are objected to because of the following informalities:

Re claim 1, claim line 2: The conjunction -- and -- should be inserted after the term "channel".

Re claim 5, claim line 3: The conjunction -- and -- should be inserted after the term "network". Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,146,103 (Lee et al.).

With respect to the limitations of claim 1, the reference to Lee et al. discloses a microfluidic system comprising a plurality of flow channels extending from a plurality of inlets/reservoirs and a microdevices comprised of a viscosity meter composed of a magnetohydrodynamic (MHD) micropump having a flow channel. The reference discloses that the MHD micropump generates continuous, reversible flow with readily controllable flow rates. The reference further that the viscosity meter can be produced

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using a MHD pump and an MHD flow meter in series, such that as the MHD pump produces a flow, a voltage on the flow meter is induced. Since the current and the magnetic field are known, the viscosity can be deduced.

With respect to the limitations of claim 19, the reference to Lee et al. discloses the placement of magnetohydrodynamic (MHD) micropumps within a microfluidic circuit such that the MHD micropump will generate continuous, reversible flow with readily controllable flow rates. The reference further discloses that a MHD viscosity meter can be produced using a MHD pump and an MHD flow meter in series, such that as the MHD pump produces a flow, a voltage on the flow meter is induced. Since the current and the magnetic field are known, the viscosity can be deduced.

6. Claims 1 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,477,901 (Tadigadapa et al.).

With respect to the limitations of claims 1-19, the reference discloses a micromachined fluidic apparatus with electronic circuitry disposed on the same substrate as the fluidic apparatus can be used in a variety of applications, including fluid flow measurement, fluid viscosity measurement, fluid transport, separation, and/or mixing. The reference further discloses that micro-fluidic systems may be stacked to facilitate more complex three-dimensional fluidic channels and circuits. In this approach, the flow may be routed, switched, branched, and/or measured through different channels. Additionally, flow sensors, actuating elements, micropumps, flow

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switches, valves, or other devices may be fabricated separately and joined together into a single package.

***Allowable Subject Matter***

7. The following is a statement of reasons for the indication of allowable subject matter:

Prior art was not relied upon to reject claims 2-18 because the prior art fails to teach and/or make obvious the following:

Claims 2-4: The cited limitations in combination with all of the limitations of claim 1.

Claims 5-16: Providing a microfluidic method comprising inducing a perturbation in a flow through a microfluidic channel and determining a characteristic of flow by monitoring progress of the perturbation in combination with the remaining limitations of the claim.

Claims 17 and 18: Providing a microfluidic system comprising a pressure transient generator in communication with a channel intersection of a microfluidic network for initiation of a flow perturbation; and a processor couple to the pressure transient generator and a sensor coupled to the network, the processor determining a characteristic of the flow in response to detection of the perturbation at the sensor location.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

The prior art to US 6,001,231 (Kopf-Sill) disclose a system for monitoring and controlling fluid flow rates in microfluidic systems whereby a microfluidic channel network is provided with a plurality of reservoirs. The reference further discloses the placement of a detector within a main channel to monitoring the output of the system. The reference discloses that the detector can include optical sensors, temperature sensors, pH sensors, pressure sensors, conductivity sensors, and the like.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Larkin whose telephone number is 571-272-2198. The examiner can normally be reached on 8:00 AM - 5:00 PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Larkin  
AU 2856  
14 June 2004



**DANIEL S. LARKIN**  
**PRIMARY EXAMINER**